

To : Examiner  
Berman

App. No. 10/585,995

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## New claims

11. An electron microscope comprising:

an illumination electron optical system having an electron source for irradiating electron beam onto a sample surface;

a detecting system having a detector for receiving a reflected electrons which generated from the sample surface;

a switching means for switching the direction of said electron beam and the reflected electrons, wherein said switching means has the function of switching the direction of the electron beam so that the electron beam is incident on the sample surface at a first timing, and so that the reflected electrons reaches said detector at a second timing.

12. The electron microscope according to claim11, wherein said

illumination electron optical system and said electron detecting system have a common path.

13. The electron microscope according to claim12, wherein said switching means is disposed on said common path.

14. The electron microscope according to claim13, wherein said switching means conducts the electron beam to the sample surface in a time that is equal or less than the time required for the electrons in the electron beam to reach the sample surface from said switching means.

15. An electron microscope comprising:

an illumination electron optical system having an electron source for irradiating electron beam onto a sample surface;

a detecting system having a detector for receiving a reflected electrons which generated from the sample surface;

a deflector for switching the direction of said electron beam and the reflected electrons, wherein a voltage is applied to said deflector at a first time so that the electron beam is incident on the sample surface, and no voltage is applied to said deflector at a second time so that the reflected electrons reaches said detector.

16. An electron microscope comprising:

an illumination electron optical system having an electron source for irradiating electron beam onto a sample surface;

a detecting system having a detector for receiving a secondary electrons which generated from the sample surface;

a deflector for switching the direction of said electron beam and the secondary electrons, wherein a voltage is applied to said deflector at a first time so that the electron beam is incident on the sample surface, and no voltage is applied to said deflector at a second time so that the secondary electrons reaches said detector.

17. The electron microscope according to claim 16, wherein said illumination electron optical system and said electron detecting system have a common path.

18. The electron microscope according to claim 17, wherein said deflector is disposed on said common path.

19. The electron microscope according to claim 18, wherein said first time is equal or less than the time required for the electron beam to reach the sample surface from said deflector.

20. An projection electron microscope comprising:  
an illumination electron optical system having an electron source for irradiating electron beam onto a sample surface;  
a detecting system having a detector for receiving a secondary electrons which generated from the sample surface;  
a deflector for switching the direction of said electron beam and the secondary electrons, wherein a voltage is applied to said deflector at a first time so that the electron beam is incident on the sample surface, and no voltage is applied to said deflector at a second time so that the secondary electrons reaches said detector.

21. The projection electron microscope according to claim 20, wherein said illumination electron optical system and said electron detecting system has a common path.

22. The projection electron microscope according to claim 21, wherein said deflector is disposed on said common path.

23. The projection electron microscope according to claim 22, wherein said first time is equal or less than the time required for the electron beam to reach the sample surface from said deflector.

## Proposed Amendment to Page 10 of Specification

The sixth invention that is used to achieve the object described above is a projection electron microscope which causes an illuminating electron beam emitted from an electron source to be incident on a sample surface via an illumination electron optical system, and which causes electrons emitted from this sample surface to be focused as an observation electron beam on a detection means via an image focusing electron optical system, wherein the observation electron beam consists of reflected electrons having an energy equal to that of the illuminating electron beam, the illumination electron optical system consists of an illumination dedicated electron optical system disposed between the electron source and the ~~above-mentioned~~ optical path switching means, and an electron optical system disposed between the optical path switching means and the sample surface, the image focusing electron optical system consists of an image focusing dedicated electron optical system disposed between the detection means and the optical path switching means, and the electron optical system described above, and this electron optical system shares some of the functions of the illumination electron optical system and the image focusing electron optical system.

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directly through the deflector 3', and is deflected by the deflector 3, after which the illuminating beam 4 reaches the surface of the sample 6. In a case where a voltage is applied to the deflector 3 ~~3'~~, the illuminating beam 4 is deflected by the deflector 3', and is absorbed by the electron absorbing plate 17.